



A collage of photos of FD-17 members and their activities, including working on computers, driving a truck, and posing for group photos, set against a background of a red Christmas tree and a stylized orange sun with a black silhouette of a building.

SARC

December 2017



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The **Communicator** is a publication of the Surrey Amateur Radio Club. It appears monthly, except July and August, for area Amateur Radio operators, to enhance the exchange of information and to promote local ham radio activity.

To subscribe, unsubscribe or change your address for e-mail delivery of this newsletter, notify [communicator @ ve7sar.net](mailto:communicator@ve7sar.net)

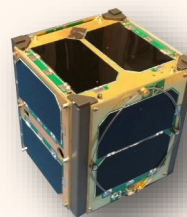
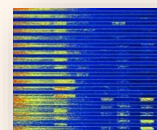
Regular readers who are not SARC members are invited to contribute a \$5 annual donation towards our Field Day fund.

SARC maintains a website at www.ve7sar.net and a Digital Communicator at ve7sar.blogspot.ca that includes recent news, past issues of The Communicator, club history, photos, videos and other information.

IN THIS ISSUE

click on the page number below

QRM	3
The Rest Of The Story—Russian Marconi	4
The Contest Contender	7
Back To Basics	8
Radio-Active	10
What's Happening This Month In Ham?	12
News You Can Lose	13
Club News—SARC	14
Club News—OTC	16
Emergency Comms	17
Emergency Program News—SEPAR Report	20
Digital Radio Modes	23
Amateur Radio News	26
Tech Topics	27
Amateur Radio Satellites	28
RAC News	29
QRT	30

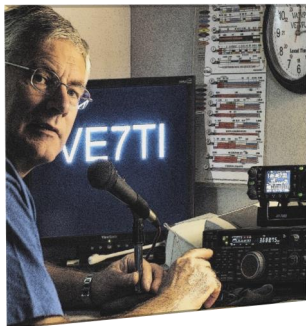


On The December Cover...

It's been a good year for the Surrey Amateur Radio Club. Improvements to the Operations & Training Centre, a Gaming grant and many successful events have raised our profile in both the Amateur and non-Amateur Community.

We look forward to the year ahead. In the meantime our best wishes for a happy holiday season ahead.





QRM

...from the Editor's Shack

*Do you have a photo or bit of club news to share?
An Interesting link?*

*Something to sell or something you are looking for?
eMail it to [communicator @ ve7sar.net](mailto:communicator@ve7sar.net) for inclusion in this publication.*

It's hard to believe that another year has passed. As a club we have made some great strides. The Operations & Training Centre (OTC) for one, has provided Surrey Amateurs with a training facility, properly outfitted with antennas, transceivers and interference rejection measures that would cause the average Amateur to drool. It's not finished yet but significant progress is made each month toward our goal.

The Surrey Emergency Program Amateur Radio (SEPAR) group has not fared as well. There has been a decline in participation and, although the number of registered Amateur Radio operators has not decreased significantly, it seems that most registrants do not take the time to participate in training and exercises.

SEPAR and SEPARS, the like-named Society, have a good inventory of equipment, the former owned by the City of Surrey, the latter owned by the Society. Equipment ages, it breaks down, it needs intervention to reduce interference and a host of other expenses. At present there is no reliable funding source to look after the needs of the organization. At its launch, SEPARS was tasked with fund-raising, however amendments to Provincial Gaming rules

have disqualified SEPARS under its present Constitution and Bylaws. This is not unique as other similar groups had to amend their documents to conform to the new funding guidelines as well.

As you read this, SARC has learned that it has been successful in securing a Gaming grant this year. SARC was denied for several years but, after much consultation with Victoria, amendments to our Constitution and Bylaws and other housekeeping changes, we were able to secure some project funding.

As a Director of both organizations, I have committed to writing an assessment of SEPARS' effectiveness, with recommendations to improve the organization's abilities to meet the objective of providing ancillary emergency communications for the City of Surrey. Hopefully going forward we can better align the needs and goals of both SARC and SEPAR and further develop the OTC for training and as a reliable base of operations in an emergency that requires Amateur Radio communications. Stay tuned, meanwhile...

Have a safe and happy holiday season.

~ John VE7TI

On the Web

ve7sar.net

Between newsletters, watch your e-mail for news, announcements of Amateur Radio events, monthly meetings and training opportunities.

Click the links below to follow our presence on the web:

SARC Blog

ve7sar.blogspot.ca

Twitter

[@ve7sar](https://twitter.com/ve7sar)

FaceBook

[SurreyAmateurRadio](https://www.facebook.com/SurreyAmateurRadio)

Our YouTube Channel

[SurreyARC](https://www.youtube.com/SurreyARC)

SARC Photo Albums

[Web Albums](#)

or

tinyurl.com/SARCphoto

He who has no Christmas in his heart will never find Christmas under a tree

December 2017



The Rest Of The Story...

Alexander Popov

The Russian Marconi?



Alexander Stepanovich Popov (March 16, 1859 - January 13, 1906) was a Russian physicist who is acclaimed in his homeland and some eastern European countries as the inventor of radio.

Born in the town Krasnoturinsk, Sverdlovsk Oblast in the Urals as the son of a priest, he became interested in natural sciences when he was a child. His father wanted Alexander to join the priesthood and sent him to the Seminary School at Yekaterinburg. There he developed an interest in science and mathematics and instead of going on to Theology School in 1877 he enrolled at St. Petersburg university where he studied physics. After graduation with honors in 1882 he stayed on as a laboratory assistant at the university. However the salary at the university was inadequate to support his family, and in 1883 he took a post as teacher and head of laboratory at the Russian Navy's Torpedo School in Kronstadt on Kotlin Island.

Along with his teaching duties at the naval school Popov pursued related areas of research. Trying to solve a problem with the failure in the electrical wire insulation on steel ships (which turned out to be a problem with electrical resonance) led him to further explore oscillations of high frequency electrical currents. His interest in this area of study (including the new field of "Hertzian" or radio waves) was intensified by his trip in 1893 to the Chicago World's Columbian Exposition in the United States where he was able to confer with other researchers in the field.

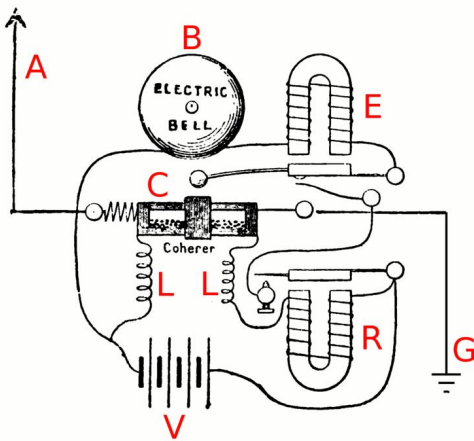
Popov also read a 1894 article about British physicist Oliver Lodge's experiments related to the discovery of radio waves by German physicist Heinrich Hertz 6 years earlier. On 1 June 1894, after the death of Hertz,

British physicist Oliver Lodge gave a memorial lecture on Hertz experiments. He set up a demonstration on the quasi optical nature of Hertzian waves (radio waves) and demonstrated their transmission at distances up to 50 meters. Lodge used a detector called a coherer, a glass tube containing metal filings between two electrodes. When received waves from an antenna were applied to the electrodes, the coherer became conductive allowing the current from a battery to pass through it, with the impulse being picked up by a mirror galvanometer. After receiving a signal the metal filings in the coherer had to be reset by a manually operated vibrator or by the vibrations of a bell placed on the table near by that rang every time a transmission was received. Popov set to work to design a more sensitive radio wave receiver that could be used as a lightning detector, to warn of thunderstorms by detecting the electromagnetic pulses of lightning strikes using a coherer receiver.

Circuit of Popov's lightning detector

In Popov's lightning detector (*next page*) the coherer (C) was connected to an antenna (A), and to a separate circuit with a relay (R) and battery (V) which operated an electric bell (B). The radio noise generated by a lightning strike turned on the coherer, the current from the battery was applied to the relay, closing its contacts, which applied current to the electromagnet (E) of the bell, pulling the arm over to ring the bell. Popov added an innovative automatic reset feature of a "self tapping" coherer where the bell arm would spring back and tap the coherer, restoring it to its receptive state. The two chokes (L) in the coherer's leads prevented the radio signal across the coherer from short circuiting by passing

"I can express my hope that my apparatus will be applied for signaling at great distances by electric vibrations of high frequency, as soon as there will be invented a more powerful generator of such vibrations"



through the DC circuit. He connected his receiver to a wire antenna (A) suspended high in the air and to a ground (earth) (G). The antenna idea may have been based on a lightning rod and was an early use of a monopole wire aerial.

On May 7, 1895 he presented a paper on a wireless lightning detector he had built that worked via using a coherer to detect radio noise from lightning strikes. This day is celebrated in the Russian Federation as Radio Day.

He did not apply for a patent for his invention. In July, 1895 he installed his receiver and a siphon recorder on the roof of the Institute of Forestry building in St. Petersburg, and was able to detect thunderstorms at a range of 50 km, however he was also aware of its communication potential. His paper on his experiments: "On the relation of metallic powders to electrical oscillations", was published 15 December 1895. in the 'Journal of the Russian Physical and Chemical Society'.

In 1895 Italian inventor Guglielmo Marconi began work on a purpose built wireless telegraphy system based on "Hertzian" (radio) waves, developing a spark-gap transmitter and a much improved automatically-reset coherer receiver. By mid-1895 Marconi had transmitted messages 1/2 mile (1600 meters). He then came up with the idea grounding his transmitter as well as his receiver and by mid-1896 he was transmitting radio messages a mile and a half (2400 meters). Popov and Marconi's early work seems to have been done without knowledge of each other's system although reading Marconi's June 1896

patent disclosures led Popov to develop a long range wireless telegraphy system.

The first account of communication by Popov was a demonstration on March 24, 1896 at the Physical and Chemical Society in St Petersburg, where he used radio waves to transmit a message between different campus buildings. Some accounts say the Morse code message "ГЕНРИХ ГЕРЦ" ("HEINRICH HERTZ" in Russian) was received from a transmitter 250 meters away and transcribed on the blackboard by the Society president. Popov said: "I can express my hope that my apparatus will be applied for signaling at great distances by electric vibrations of high frequency, as soon as there will be invented a more powerful generator of such vibrations." His work was based on the work of other physicists such as Oliver Lodge and contemporaneous with the work of radio pioneer Guglielmo Marconi. Historian Charles Susskind in 1962 concluded that Popov did not use radio waves for actual wireless communication before mid-1896.

In November 1897, the French entrepreneur Eugene Ducretet made a transmitter and receiver based on wireless telegraphy in his own laboratory. According to Ducretet, he built his devices using Popov's lightning detector as a model. By 1898 Ducretet was manufacturing equipment of wireless telegraphy based on Popov's instructions. At the same time Popov effected ship-to-shore communication over a distance of 6 miles in 1898 and 30 miles in 1899.

In 1900 a radio station was established under Popov's instructions on Hogland island (Suursaari) to provide two-way communication by wireless telegraphy between the Russian naval base and the crew of the battleship General-Admiral Apraksin. The battleship ran aground on Hogland island in the Gulf of Finland in November, 1899. The crew of the Apraksin were not in immediate danger, but the water in the Gulf began to freeze. Due to bad weather and bureaucratic red tape, the crew of Apraksin did not arrive until January 1900 to establish a wireless station on Hogland Island. By February 5, however, messages were being received reliably. The wireless messages were relayed to Hogland Island by a station some 25 miles away at Kymi (nowadays Kotka) on the Finnish coast. Kotka was selected as the location for the



Radio pioneer Alexander Popov on the 1989 USSR stamp. The text says "Inventor of radio, A. S. Popov, 1859-1906. Demonstration of the first radio, 1895"

December 2017

wireless relay station because it was the point closest to Hogland Island served by telegraph wires connected to Russian naval headquarters.

By the time the Apraksin was freed from the rocks by the icebreaker Yermak at the end of April, 440 official telegraph messages had been handled by the Hogland Island wireless station. Besides the rescue of the Apraksin's crew, more than 50 Finnish fishermen, who were stranded on a piece of drift ice in the Gulf of Finland, were saved by the icebreaker Yermak following distress telegrams sent by wireless telegraphy.

In 1901 Alexander Popov was appointed as professor at the Electrotechnical Institute, which now bears his name. In 1905 he was elected director of the institute.

Death and legacy

In 1905 he became seriously ill and died of a brain hemorrhage on January 13, 1906. A minor planet, 3074 Popov, discovered by Soviet astronomer Lyudmila Zhuravlyova in 1979, is named after him. At ITU Telecom World 2011, Igor Shchyogolev, Minister of Telecom and Mass Communications of the Russian Federation alongside Hamadoun Touré, Secretary General of the ITU, inaugurated the "Alexander Stepanovich Popov" conference room at ITU's headquarters in Geneva.

Advice in towertalk@contesting.com

Weatherproofing Connectors



"Tape and taffy" has been the standard way of weatherproofing connectors in the commercial world for the better part of 50 years. Applying a layer of Scotch 88 first is known as a "courtesy wrap" - it makes getting the connection open again in the future much easier as compared to applying butyl tape directly to the connectors. When properly courtesy-wrapped, a single axial slit with a utility knife should allow the entire tape+taffy protection to peel off easily.

If you use good tape (such as Scotch 33+ or Scotch 88), there's no reason to apply the tape inside-out as it will still come off cleanly decades later, unlike cheaper tapes that become brittle or have adhesive which stays stuck to the connector while the tape peels off. And of course, wrapping the tape on the connectors the normal way makes for a better weatherproofing seal as compared to wrapping tape inside-out.

The correct application is the courtesy wrap followed by butyl, followed by three wraps of 88 in "up, down, up" shingle-style layers, with the tape pulled taught enough while wrapping to prevent any wrinkles or gaps, but not so tight that it will cause the butyl to flow out from under it when it gets hot. The butyl should be applied as a fairly thin wrap not a big "blob"; stretch it a bit as you're applying it, overlapping the wraps slightly. Then "massage" it to get out any pockets of air that may have been trapped, and form it into a nice smooth tapered-cylinder kind of shape, devoid of any bumps or valleys, so that the outer layers of tape can be applied smoothly with no wrinkles or voids.

John White VA7JW presented to a recent SARC meeting on this subject. His documentation can be viewed at http://www.nsarc.ca/tech_archive/Articles/PL-259_Weatherproofing_Article.pdf



The Contest Contender

Fred Orsetti VE7IO

CQ World Wide SSB contest 2017 from VE7IO

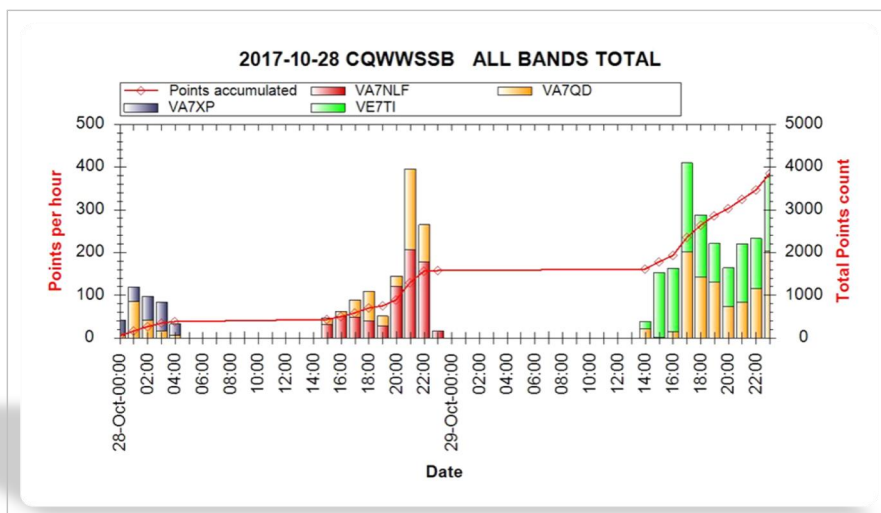
Band	QSOs	Zones	Countries
160:	0	0	0
80:	93	5	4
40:	117	10	8
20:	962	25	60
15:	648	23	51
10:	0	0	0
Total:	1820	63	123
Total Score	714,054		

We were privileged to have the use of the Radio Amateurs of Canada call 'VE7RAC' for this contest in honor of the 150th birthday of Canada. Using VE7RAC gave us an opportunity to put the call in many logs making them eligible for the Canada 150 certificate. Since the Canada Day contest on July 1st a number of different stations have used VE7RAC on many bands and modes and this will continue until the end of the year. Here at VE7IO we have had some very successful days operating with VE7RAC and will wind it up with the Canada Winter Contest on December 29th.

Total operating time was 21 hours so the average Q rate was $1820/21 = 86.71$ per hour for two stations. Overall this was pretty good but obviously the large overnight gaps cost us dearly. The other area that we could have improved was the number of multipliers. We missed a good opening Sunday to South America on 10 meters which would have helped a lot.

The five dedicated operators did an outstanding job keeping the butt in the chair for 9 to 11 hour shifts, well done.

For the CQ WW SSB contest here's how we did



I want to thank Stan, VA7NF, for his much appreciated help. I was away from home on the Saturday and Stan stepped up and did an outstanding job as station manager.

Our next contest from VE7IO will be the RAC Winter Contest, CW and SSB on December 29th. We will be using VE7RAC.

~ Fred VE7IO

December 2017



Back to Basics

John Schouten VE7TI

From The Basic Question Bank

Our monthly look at the Basic Question Bank for this edition covers not only the concept of Impedance, but also matching Impedances, SWR, and tuned circuits. Here is one of the questions:

B-005-10-04 (3)

In inductances, AC may be opposed by both resistance of winding wire and reactance due to inductive effect. The term which includes resistance and reactance is:

- A. Resonance
- B. Inductance
- C. Impedance
- D. Capacitance

Impedance is the total opposition to alternating current by an electric circuit, equal to the square root of the sum of the squares of the resistance and reactance of the circuit and usually expressed in ohms. The symbol for Impedance is Z.

Phew! That's quite a mouthful and not very simple to comprehend. No wonder many basic course students have trouble understanding this concept and Reactance, which we covered last month.

To explain it in simpler terms, Impedance is a measure of the extent to which a circuit opposes the flow of electricity. All materials have some degree of electrical resistance, which causes some energy to be lost as heat, and reduces the flow of current. In the case of direct current (DC), impedance is the same as resistance, and depends solely upon the materials from which the circuit is made. For an alternating current (AC), however, two additional factors can contribute to the impedance: capacitance and inductance. Together these are known as Reactance, which is a measure of opposition to a change in current that depends on its frequency, and on the components of the circuit.

Alternating current is constantly changing direction, and does so at a given frequency, which is measured

in Hertz (Hz), or cycles per second. Typically, electricity is supplied at 50 or 60 Hz, but this may be changed for specific applications. The frequency can be displayed as a wave on an oscilloscope in terms of current or voltage, with the distance from crest to crest representing a complete cycle. The degree of reactance in a circuit is dependent upon the frequency of the AC supply. More specifically, capacitive reactance decreases with increasing frequency, while inductive reactance increases. Don't forget, RF is also AC as it is a constantly changing minute voltage.

So... what is the difference between resistance and impedance?

Resistance is a concept used for DC (direct currents) whereas impedance is the AC (alternating current) equivalent. Impedance is a more general term for resistance that also includes reactance. OK, let's review Reactance (See also the November 2017 Communicator). So simply resistance and impedance have different fundamental origins even though the calculation for their value is the same:

Resistance (R)=Voltage E ÷ Current (I)

In other words, resistance is the opposition to a steady electric current. Pure resistance does not change with frequency, and typically the only time only resistance is considered is with DC (direct current... not changing) electricity.

Inductance is most obvious in coiled wire. When a current flows through a wire a circular magnetic field is created around it. If you coil the wire into a solenoid the fields around the wire sum up and you get a magnetic field similar to that of a bar magnet on the outside but you get a uniform magnetic field on the inside. With AC since the sign is always changing the direction of the field in the wires is always changing - so the magnetic field of the solenoid is also changing all the time. The opposition to this is Inductive Reactance.

Capacitance is a property best illustrated by two metal plates separated by an insulator (which we call a capacitor). When current flows electrons build up on the negative plate. An electric field propagates and repels electrons on the opposite plate making it positively charged. Due to the build up of electrons on the negative plate incoming electrons are also repelled so the total current eventually falls to zero in an exponential decay. The capacitance is defined as the charge stored/displaced across a capacitor divided by the potential difference across it and can also be calculated by the size of the plates and the quality of the insulator. The opposition to this is Capacitive Reactance.

Reactance, however, is a measure of the type of opposition to AC electricity due to capacitance or inductance. This opposition varies with frequency. For example, a capacitor only allows DC current to flow for a short while until it is charged; at that point, current will stop flowing and it will look like an open. However, if a very high frequency is put across that capacitor (a signal that has a voltage which is changing very quickly back and forth), the capacitor will look like a short circuit. The capacitor has a reactance which is inversely proportional to frequency. An inductor has a reactance which is directly proportional to frequency -- DC flows through easily while high-frequency AC is stopped.

Impedance is the total contribution of both, resistance and reactance. This is important for AC analysis and design. It is important to mention that while energy goes into both, it is only 'burned off' through resistance. Power has to be given in terms of resistive power and

reactive power. Resistive power actually burns off energy into heat while reactive power simply stores energy in E-fields and B-fields.

Often you'll hear about the 'impedance' of transmission lines, like the cables which run between components of your radio system, and impedance of things like transmission lines and antennas. You'll also hear that it is important to match these or else you'll get reflection (SWR).

However, what I want to mention is that when you hear about the impedance of a transmission line, like speaker cable or an antenna or coaxial cable or anything else, this does not represent energy which is "burned off" in the cable. This has to do with how energy is stored in the cable as it propagates down it. The cable does not (well, in reality it does, but assume the lossless case for simplicity) get hotter as a signal travels down it. It is not proper to think of a '50-ohm cable' as a 50-ohm 'resistor.' That 50-ohms is purely reactance (though there really is attenuation in real cables).

Note that impedance and reactance are both given in units of 'ohms' just like resistance.

The short answer is impedance includes reactance, and reactance includes effects which vary with frequency due to inductance and capacitance.

The correct answer to our original questions is therefore C. Impedance

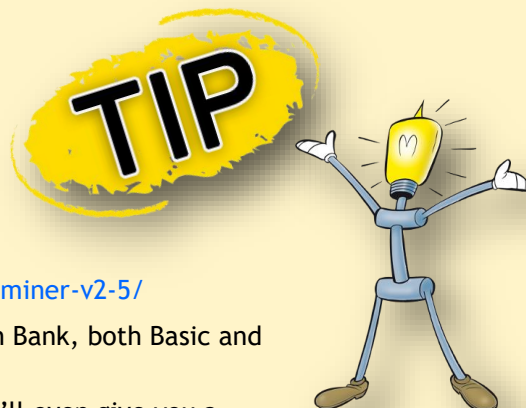
~ John VE7TI

Study Links

Whether you are new to the hobby or brushing up on skills, you should find these study links helpful:

1. RIC-7 is the entire up-to-date Industry Canada (IC) Basic Question Bank.
<http://tinyurl.com/CanadaBasicQB>
2. There is a RIC-7 that has some explanations along with the questions.
[RIC-7 2014rev08.05 with explanations.](#)
3. The Amateur Radio Exam Generator is at:
https://www.ic.gc.ca/eic/site/025.nsf/eng/h_00040.html
4. The ExHaminer Study software for Windows is at: <https://wp.rac.ca/exhaminer-v2-5/>
5. The Ham Study website has a flash card approach to learning the Question Bank, both Basic and Advanced. It is at: <https://hamstudy.org>

Contact SARC if you wish to write the Basic or Advanced Exam. If you pass we'll even give you a year's free membership!



December 2017

Radio-Active

John Brodie VA7XB

Profiles of SARC Members



Michael Birtles
VE7GMP

Who was this new young guy seen everywhere during Field Day 2017, making himself useful by noticing things that needed doing and just doing them? It was Michael Birtles, VE7GMP, a recent ham class graduate. Then, during the late hours when all except the scheduled operators had gone home for the evening, he found himself a radio and proceeded to make some SSB contacts during this, his first contest ever. Since then, he has participated in additional contests including the CQ WW DX (RTTY) contest on the weekend of Sept. 23/24 where he quickly proved he was up to the task by making 20 contacts of his own.

Michael has an interesting background. Although born in Calgary, he and his family left for Oaxaca, Mexico in 1998. As linguists, his parents were employed in teaching both old and young Mexicans to read and write in the native Zapotec language in an effort to preserve the traditional dialect. The community was poor, mostly involved with subsistence farming, and he recalls helping his friends herd their goats. Michael, his sister and parents lived much as the others did, crowded into a 250 sq ft home. While in Mexico, Michael was home schooled to Grade 11 then completed his high school education at an international school.

One of Michael's interests growing up was aviation. He spent many afternoons at a hanger adjacent to a small dirt airstrip in a town they lived in part-time. The

hanger was the property of a mission aviation organization that primarily provided emergency medical flights to remote villages. He became good friends with a mechanic several years older than himself, who would let Michael hang around and watch and in return Michael helped him with the electronics around the shop.

Michael was sixteen or seventeen when this mechanic called him up one evening, and asked if he would be interested in taking a look at a project for someone he knew. He drove Michael to a repurposed warehouse, where six newly graduated mechanical engineers were designing an aircraft for a businessman that wanted to sell the design to the Mexican Air Force. They had gotten to the point of hooking up the radios, but none of them could figure out how to do it, as the last tech they had hired had taken off without getting them working.





It took about forty-five minutes to read the wiring diagrams for the radios and get one operational on the workbench. The businessman running the project asked Michael if he would design, and build the wiring harness for the radios. He agreed to do so, and spent the next day measuring and cutting wire, and soldering connectors. Three radios were to be installed for redundancy, however they were all being powered from one battery, through one wiring harness. Michael pointed out that if they truly wanted a redundant system a second battery and wiring harness would be highly preferable. He was told to "just make it work", so he figured that he would leave

the worrying to someone else. This was an experience Michael never would have had if he had grown up in Canada, and one he will certainly never forget.

In 2013, the family returned to Calgary, where Michael attended Prairie Bible College and graduated with a certificate in outdoor leadership, which he put to good use at a camp for troubled youth. This was also an opportunity for Michael to get used to Canadian culture after his many years living in Mexico. For two summers thereafter, he worked on a farm in Saskatchewan belonging to extended family, where he helped with the grain crop and sour cherry orchard. Finally, in 2016 Michael moved with his parents to Langley, where his father completed his linguistics degree at Trinity Western University.

Michael has always had an interest in electronics, which led to his current employment in a local business designing, installing and maintaining home automation equipment in new homes for owners who wish to operate appliances, security and other devices through computer programming, typically remotely. To further his knowledge, he is currently supplementing his education of home automation technology with a course at BCIT on low voltage wiring systems.



Herding Goats

Ever since a young age when he listened to Cuban number stations with an old shortwave radio, it has been Michael's ambition to obtain an amateur radio license. After spotting a poster at SMI Electronic Supplies in Langley, he registered and graduated from the basic course in the Spring of 2017 and has been a member of SARC since that time. He professes a particular interest in use of VHF radio for emergency response but also has a desire to become proficient in HF communication especially DXing. In his spare time, he enjoys repairing computers for family and friends. The one particular attraction to SARC has been the social aspects, as he feels he benefits from the association with others who can help him pursue his technical interests.

~ John Brodie VA7XB

December 2017



December 2017

Sun	Mon	Tue	Wed	Thu	Fri	Sat
For details on all SARC events, go to ve7sar.net For details on all SEPARS events, go to separ.shutterfly.com/calendar					1	2 0900 Club Social: Kalmar Family Restaurant
3	4	5 1930 SEPAR Net 2000 SARC Net	6	7	8	9 1130 SARC Christmas Party CONTEST: ARRL 10m contest (CW & phone)
10 CONTEST: ARRL 10m contest (CW & phone)	11	12 1930 SEPAR Net 2000 SARC Net	13	14	15	16 0900 Club Social: Kalmar Family Restaurant
17 CONTEST: ARRL Rookie Roundup (CW)	18	19 1930 SEPAR Net 2000 SARC Net	20	21	22	23 0900 Club Social: Kalmar Family Restaurant
24/31	25 	26 1930 SEPAR Net 2000 SARC Net	27 1900 SARC Directors' Meeting	28	29	30 0900 Club Social: Kalmar Family Restaurant CONTEST: RAC Winter Contest (CW & phone)

Contest Details: <http://hornucopia.com/contestcal/contestcal.html>



Page 13—News You Can Lose

The Lighter Side of Amateur Radio

Hams Awed By Majesty of 80 Meter Nativity Net

By WBØRUR, on the scene

ORANGE PLAINS, Kansas — Amateur radio operators listening in on 3.875 MHz last night may have been surprised at what they heard crackling through the airwaves as hams across the country celebrate the yuletide season.

For weeks, Robert Von Werther and members of the Sunflower State Amateur Radio Club have been planning a “Nativity Scene Net” on 80 meters as part of their Christmas holiday observances.

“One year, we sent QSL cards from Christmas City, Kansas,” says the 58-year-old beet farmer. “Another year, we activated a special event aboard a Christmas parade float. But we really knocked it out of the park with this live nativity net.”

Enlisting the help of ham radio operators across the United States, amateurs were assigned various “roles” each required to send specific transmissions “to tell the nativity story” as recounted in the New Testament Gospel of Luke.

“It was heartwarming,” says Von Werther. “I cranked up my vintage Hammerlund HXL-1 and blasted over 1500 watts PEP of Baby Jesus across the ionosphere.”

Participants recited their designated lines, but ended each transmission with a call sign to keep the net “legal.”

But not all went as planned.

Ham operator Gregory Boatwright in Salisbury, Pennsylvania says he was listening into the “nativity net” as the ham portraying The Angel Gabriel concluded his monologue to the shepherds... and finished his transmission with a series of off-color comments when his PTT stuck open.

Worse, one ham says he received an FCC citation. “I got a pink warning slip in the mail from an Official Observer,” says Winston Northridge of rural Manchester, Utah. “I had to call the OO on the phone and explain that the word ‘ass’ referred to a donkey-like animal and was mentioned in the Bible.”

Von Werther says his club is now working on an 80 meter “Passion Play” for the Easter season.

~Ham Hijinks



Wife: This is really your idea of a Christmas present?”

**Me: [on the other hand-held]
“You didn't say over, over.”**





At The Last SARC Meeting

September General Meeting Minutes

Wednesday, November 8, 2017

Welcome & Introduction

President Stan Williams VA7NF opened the meeting at 1920 hr, with 16 members in attendance.

Announcements

Christmas Party

Jinty Reid VA7JMR announced that the Oak Ball Room at the Newlands Golf and Country Club has been booked for Dec. 9th, with a buffet lunch planned. Cost to members and guests is \$25. Full payment must be made on Nov 25th for 60 persons minimum. If you wish to attend, please RSVP jinty.reid@gmail.com and cc brodiejb@shaw.ca. LARA, SEPARS and the White Rock Club are invited. Al Munnik VA7MP volunteered to extend the invitation to LARA at their next meeting. Payment can be made through Paypal on the website but you need to select the donation button and add a note that it's for the buffet. Those who can assist members needing transportation should contact Stan Williams. The main door prize this year is a Baofeng UV-5R handheld radio generously donated by Fleetwood Digital Products.

ICBC Ham Plates

Al Munnik VA7MP, RAC Director for BC/Yukon, advised that the ICBC plate registration system currently has an issue when renewing 2-letter callsigns (5 characters) license plates.

There was an extensive write-up in the November Communicator. If you missed it, read it here:

<http://tinyurl.com/Ham-Plates>

Financial

Scott Hawrelak VE7HA reported on the balances in SARC's 3 accounts and advised that the next order for name badges will be placed in the Spring 2018.

Membership

John Brodie VA7XB reported that membership currently stands at about 110 and those that are in arrears have now been removed from the list, after several reminders.

Operations & Training Centre

John Brodie VA7XB reported that we were successful with our gaming grant application this year but the grant was less than the amount requested. A meeting of the OTC committee has been called for Nov 19 Sunday at 2:30pm in order to discuss spending priorities. Members who are interested in participating should contact John.

In addition, some good equipment has been donated recently and we need to decide how it will be sold, used and/or made available for loan to club members.

New Business

Website

Jeremy Morse VE7TMY has designed a new static website that includes links to the club's blog and social media feeds. There has been a pause in progress while Jeremy was on holiday but he has been in discussion with the directors for feedback. The next update will be at the board meeting 2 weeks from today.

Items for Sale

The club has purchased 3 different styles of type 31 ferrite cores which have been used for RFI/common mode current suppression at the OTC. Unused cores will be available for purchase by members at cost as follows. These are all Type 31 material, all \$CDN with local pickup; the prices are:

- Solid beads 25.9 OD, 12.8 ID, 28.6 long (Fits over RG8 type coax) \$2.25
- Split core/snap on size as above \$4.00
- Large diameter 61.0 x 35.6 x 12.7 (5 turns RG8 with connector) \$7.25

Presentation

Stan Williams VA7NF made a presentation about ferrites and baluns, using reference material prepared by John White VA7JW (with permission).

Reference: http://www.nsarc.ca/hf/ferrites_baluns.pdf

The meeting was adjourned at 2120 hr.

~ Jeremy VE7TMY
Secretary

SARC Christmas Luncheon

*You are cordially invited to the
Newlands Golf & Country Club (Oak Ballroom) at 21025 48th Ave., Langley
on the 9th December 2017 from 11:30 am until 2:30 pm.*

The menu will be a special Christmas Buffet. Liquor will be available for purchase.

*Pre-pay is required at \$25 per person for members & guests
(please pay to Scott Hawrelak by cash, cheque or via Pay Pal)*

*We would like to extend this invitation to SEPAR,
Langley Amateur Radio Club and the White Rock Amateur Radio Club.*

Awards and door prizes will be part of the event.

~ ~ ~

RSVP jinty.reid@gmail.com

December 2017

OTC Station News

John Brodie VA7XB

\$uccess!



As most everyone knows by now, SARC was successful in getting a Gaming Grant for the 2017/18 fiscal year. Although the amount was less than we hoped, it is still sufficient to get us significantly closer to our long-term goal of having 3 state-of-the-art stations available for training and emergency use.

Eleven members of the OTC committee met on Nov. 19th to discuss how best to spend the grant plus monies left over from last year's Marvin Hunt grant. Predictably, a lively debate about the merits of each person's individual preferences and biases took place with some old ideas rejected and some new ones gaining support. All opinions were respectfully offered, heard and debated - thankyou to all who contributed.



iCom IC-7610 (The Currently Favoured Transceiver for Station 2)

SteppIR DB-36 (For 40 and 80m capability - Is it a Fantasy?)



Consensus was evident on a few key points. The first was that we should prioritize our financial resources to get the awaited Flex 6600 SDR fully operational as soon as

possible, but without a linear amplifier for the time being considering the high cost of its companion amplifier, the Powergenius XL. The second decision was that if we purchase another transceiver, that it be the new IC-7610 - in preference to the Elecraft K3S - provided that the former lives up to its advance favourable reviews.

One major change in direction which gained support was to upgrade the HF antennas by either replacing or supplementing the TH-7 tri-bander in favour of a larger antenna with 40 m, or even 80 m capability. This is in full recognition that a) the existing 80-40 off-centre-fed wire antenna is not performing well and b) that installation of an additional tower at the site would likely

be required, as the existing tower is generally considered in- capable of safely supporting larger wind/weight loads than it now has.

Purchase of a gas-fired generator such as a Honda 2000 received general support, as we currently have no backup for batteries should mains power be lost.

Other decisions which will have to be made involve:

- The extent to which remote operation of one or more radios can/should be accomplished and how that will affect equipment selection
- Upgrading or replacement of computers and monitors and their integration with the 12 v platform
- Purchase of linear amplifiers and for which of the 3 stations
- How best to get full Internet functionality to allow software downloads, spotting, propagation monitoring etc.
- Purchase of other station accessories as needed.

The next meeting is scheduled for 1430 Sunday December 17 at which time the committee will endeavour to narrow the list down and make some definitive decisions about at least the major purchases. In the meantime, the committee will be further examining options and cost. If you have not yet been involved and wish to contribute to this important task, please let me know and you will be included in future meetings.

~ John VA7XB

John is congratulated on his successful preparation and submission of this year's Gaming grant. Thank you.
~ Ed.

Emergency Comms

Ham Radio Making A Difference



Public Safety Advocate:

When All Else Fails, There Is Ham Radio

By: Andrew Seybold September 28, 2017
<http://andrewseybold.com/>

As I am preparing a report on the commercial and public safety communications activities during and after Harvey, Irma, and now Maria, which was the worst of the batch, I took some time to reach out to the amateur radio community to find out what they have been doing. The answer is a lot, and often! First, the Radio Relay International (RRI) organization made up of amateur radio operators who specialize in long-range communications has been busy handling health and welfare messages from the islands. Meanwhile, the Red Cross, which has a relationship with the Amateur Radio Relay League (ARRL), put out a call for fifty Red Cross certified ham radio operators to travel to Puerto Rico. Tim Duffy, president of the Radio Club of America (RCA) and president of a large amateur radio supply company also played an active role.

A number of hams from the United States have traveled to the islands while mainland hams have been receiving radio traffic, mostly at this point from residents who want to let their mainland family members know they are alright. Other ham radio emergency organizations such as the Amateur Radio Emergency Services (ARES), the Radio Amateur Civil Emergency Service (RACES) and the Military Affiliate Radio Service (MARs) have all been active in the three hurricanes and in providing local communications after the storms passed.

Hams man stations at Red Cross and other shelters and assist the public safety community when asked. In the case of the Virgin Islands and Puerto Rico, they are

serving another important function, that of notifying relatives on the mainland of island residents who are safe. This type of radio traffic is sent using shortwave radios that can communicate over long distances and can be set up and used with a simple wire-type antenna strung between two trees or buildings.

The greatest need has, of course, been in Puerto Rico and the ham radio community has not disappointed. The ARRL sent a number of cases containing long-distance radios and wire antennas, and others are procuring solar panels to use as a power source. Many island hams have set themselves up to be self-sufficient with battery back-up for their radios, perhaps a generator, and ways of stringing up temporary antennas if their own antennas were torn down. The Puerto Rico Federal Affairs Association (PRFAA), a Washington-based organization that normally interacts with the White House, Congress, and other U.S. federal agencies is working diligently to send messages to and from the island, and is coordinating efforts with federal agencies on the island to secure locations to set up communications facilities.

Those in Puerto Rico who have not been able to contact their U.S. mainland relatives because there is little if any cellular service are finding the Red Cross and ham radio community working hand in hand to process messages back to the mainland. The way this works is that a message from a survivor is transcribed for the radio operator who, using voice or code, sends the message out to a station on the mainland. It appears as though much of this traffic is going into the New York area. Once the message is received, it is again transcribed and the person who needs

December 2017



Amateur radio is often viewed as an old-style hobby that is dying out due to the Internet, cell phones, and cheap forms of communications

to be contacted is usually called on the phone and read the message. Sometimes an answer can be sent to the island but not always. At least the mainland relatives know how those on the island are doing.

Ham radio is also used in many emergency operations centers (EOCs) to provide contact out of the area, again perhaps back to the mainland or to other EOCs. Some emergency communications vehicles are equipped with amateur radios and when sent to an area, a ham rides with the public safety communications personnel to handle the more routine types of traffic, leaving the public safety channels available for emergency work. Local hams are working to re-establish both local voice and data networks that were damaged during Maria and help with related tasks as well. One big benefit of ham radio is that hams can move their equipment and set it up almost anywhere it is needed. They are mobile, they have handheld radios and can assist both locally and long distance, and do not need the Internet or cell phone service to communicate locally or around the world.

Amateur radio is often viewed as an old-style hobby that is dying out due to the Internet, cell phones, and cheap forms of communications. The reality is that there are many young people studying for and passing tests for their amateur radio licenses. If you ask them why, they will tell you they believe they can be of service during major storms and other types of disasters and that there is plenty of room for experimentation and learning. Hams have been using the Internet to interconnect radios in distant cities for many years and there are many data systems on the air as well. Yes, the data speeds are slow, not anywhere near data speeds on commercial broadband networks, but these systems can be moved, set up where

needed, and provide data connections between hospitals and other organizations.

The FCC has given the ham radio community a number of different portions of spectrum over time. Spectrum that is close to existing public safety and business radio is used for short-distance communications but using the proper equipment, it can easily provide communications over an entire city. Spectrum in the lower portions of the radio spectrum is used for longer-distance communications and can provide solid communications around the world. In the case of Puerto Rico and the Virgin Islands, it can also move voice and Morse code traffic off the island today when most cellular systems are down, as are power and the Internet. Ham radio stations in Puerto Rico have been communicating with mainland United States since the storm blew past, and they are still being used on a daily basis.

In Puerto Rico and the Virgin Islands, very high winds and a lot of driving rain took out the islands' power, not only at primary power sites. If you look at the pictures, in many areas power poles are lying on the ground and wires are simply dangling freely. The task to bring both power and cellular services back up on the island will take a long time and a lot of effort, not to mention funding. Hams are all volunteers. They are not permitted to be compensated for their work and they purchase their own equipment with their own money in most cases. Some of



the most forward-thinking communities have outfitted their Emergency Operations Centers and communications command vehicles with ham radio equipment, but most of the radios used in these disasters have been purchased by the individual hams or by the ARRL for use during disasters.

I am told that the VHF and UHF Land Mobile Radio (LMR) systems on the island used by police, fire, and EMS services are functional for the most part, and I will discuss both cellular and LMR systems in more detail in next week's blog. It is somewhat ironic that Puerto Rico opted into FirstNet only a few weeks ago. AT&T has not even had time to assess what is needed to bring its network closer to public safety grade but it is doubtful that even with more hardened sites, more battery back-up, and more generators the system would have been up 100 percent across the island. Tower News Daily published pictures of some cell sites in Florida where the tower withstood the force of the wind but the antennas were bent over and pointing at the sky instead of the ground. Even if those cell sites remained in service they would not have been useful to anyone in the area.

Events such as hurricanes, tornadoes, and major earthquakes that damage communications systems cannot be prevented regardless of how much effort has been put into hardening the network. In these cases, the issue is how quickly service can be restored and what means are available to assist. When an event such as a hurricane gives us warning, commercial network operators, power companies, and land mobile radio companies all prepare. In most cases they pre-stage fuel for generators, people, repair trucks, parts, antennas, and perhaps the electric company brings in some power poles. But when an incident simply happens with no warning, the time it takes for help to be on the way is increased.

Cell phone companies have Cells On Wheels (COWs) they can bring in, some of which have satellite backhaul so they can be connected to the network. In the future, there will be flying COWs and drones that can stay in the air for long periods of time and provide backup services until services on the ground are back in operation and also in areas where today there is no coverage but coverage becomes necessary due to an incident. While all of this is great and it will get better, in Puerto Rico and the Virgin Islands there is so much damage and so many roads that are not passable that probably only flying COWs and drones would be useful in many areas.

As the islands are put back into operation with power and cell services, you can bet AT&T will be restoring its network and also eyeing changes it can implement to make them more resilient. However, even then, if there is another event such as Maria I am not at all sure that even if all the sites are completely hardened (an impossibly expensive task) that the networks would be able to withstand the forces of nature. Remember, somewhere in your neighborhood is a ham radio operator who stands ready to assist in bringing communications to those who need it most. Sometimes it seems we simply assume our communications networks and the Internet will be available all the time, but during Harvey, Irma, and now Maria, many learned that communications capabilities, one of the most important links for all of us, may not always be available when we want them and need them. While our infrastructure companies work at making our systems better, there are times when nature's fury beats our best efforts. The good news is that when all else fails there will still be amateur radio!

*Andrew M. Seybold W6AMS
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December 2017

Surrey Emergency Program Amateur Radio



The SEPAR Report

Roger Andrews VA7VH - SEPAR Coordinator

December Update

This has been a quiet month for SEPAR. A couple of our newer members have been participating in some 'catch-up' training with Fred VE7IO. This is mostly NTS message practice, but those of you that know Fred will know that he is very knowledgeable and so we get a lot of extra tidbits.

This month was also the time that SEPAR members were thanked by the City of Surrey for their volunteer time. Last year was my first year attending the Volunteer Appreciation Night and the event was held in a fairly small room at the Guilford Library. While I appreciated the thought, and the speaker employed to entertain us was worth the night, I found it to be a cramped event. After speaking later with Lorraine, she agreed, and the hope was that this year, we would see the event in a better place.

Well it was! It was held this year at the Surrey City Hall in the Atrium. My personal feeling is that having the event

in that venue made us feel as though we were being appreciated a fair bit more than I felt in a cramped room.

Underground parking was provided with what appeared to be plenty of security staff. I congratulate the City for doing more to make us feel appreciated. I was also thankful for the change to allow our spouses (or significant other) to attend with us. I personally still like my spouse! So, I'm happy she could share the appreciation from the City with me.

The Coffee and dessert spread was more diverse than last year and there were some nice touches around the venue to make it pleasant. The Surrey Youth Orchestra provided music for the event. A very classy touch.

This year the department volunteer leaders (SAR, ESS 1&2 and SEPAR) were invited to give a 5 minute presentation about their department. Surrey also has a new Volunteer group starting this year - Community Engagement. This new group



will be teaching residents how to be prepared. The individual group presentations were an interesting touch and it that gave those of us in a different department a bit of an understanding of what the other SEP (Surrey Emergency Program) volunteers do.

The other departments have had activations over the past year. SEPAR, fortunately, did not. The reason for that is that it would take a major local emergency or disaster to activate us. I therefore, did not give a review of our year, as the other departments did. Instead, I spoke about our potential. I used Hurricane Maria's landfall on Puerto Rico as an example. There have been several excellent news stories discussing the value that Amateur Radio has had in that example, and so I compressed those stories of successes into an 8 minute presentation. From the kudos by various people afterwards, it sounds as though it was well received. I believe it presented SEPAR in an excellent light. City Councillor Dave Woods certainly got a kick out of the picture of [Herman Muster](#) operating an antique radio at the very beginning of my presentation. A little self deprecating humour went along with it!

Some SEPAR members were recipients of long service awards and unfortunately not all were present. It was a nice touch for the department leader (myself) to be able to introduce our own SEPAR members to the crowd. Congratulation to Marcy Lui and Kjeld Frederiksen on receiving their 10 years of service award.

I'm looking forward to a similar event next year as this one was well put together and a pleasure to attend.

Weekly Nets

Every Tuesday evening at 1930 hrs (7:30pm PDT) we start a ½ hour NET on a local repeater provided by the Surrey Amateur Radio Club (SARC) on 147.360 MHz +600kHz and a tone of 110.9. There may be a simplex test or a test NTS message transmitted during the NET at the Net controllers discretion. This is an excellent opportunity to practice sending and receiving this form of messaging. Besides, it adds a little spice to the regular check-ins on the net. Please join us. NTS Radiograms can be found on the SEPAR website here, or, if you would like a fillable PDF that you can enter on your computer, you can get it from here.

Thursday nights at 19:30 hours, This Net has changed! We are no longer doing a regular 2 meter simplex Net on this night. Any plans for Thursday night will be announced on the Tuesday before. This night will now be used for optional tests. For example NTS Digital exchanges, 6 meter, 2 meter 60 cm and 220 Nets. If someone wants to do a particular net on a Thursday, then please announce it on the Tuesday before.

~ Roger VA7VH



Surrey Emergency Program Amateur Radio

December 2017



North Shore ARC

Latest News

North Shore Amateur Radio Club

BASIC AMATEUR RADIO COURSE

Six Saturdays: January 6 - February 10, 2018

9:30 am to 1:00 pm

Industry Canada Exam Saturday Morning - February 17, 2018

Registration is prior to Jan 6 to receive books. Class starts at 9:30 am

Cost \$130 Cash or Cheques only, when Coax book handed out.

Includes handouts of useful Ham information, power point lesson slides, Coax Publications text book, Club membership, coffee, snacks

OCCASIONAL AFTERNOON PRACTICUM

Same day as Lessons except in Afternoons

Informal, practical sessions with hands-on demonstrations and discussions using equipment in the NSEM radio room.

1:30 to about 4 pm

Class Location

North Shore Emergency Management Office (NSEM) East Door
147 East 14th Street, 2nd Floor (Gerry Brewer Building), North Vancouver, B.C.

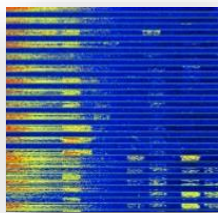
Information Contact

Chief Instructor: Mark Spencer VE7AFZ

Tel: 604-762-4099 E-mail: m Spencer12345@yahoo.ca or

Check NSARC Website for complete details.

<http://www.nsarc.ca>



Digital Radio Modes

Richard Jannes, PD3RFR

An Introduction To FT8 Mode

FT8 is a new digital mode, introduced in July 2017 and developed by K9AN (Steven Franke) and KJ1T (Joe Taylor). FT8 stands for "Franke and Taylor, 8-FSK modulate".

It's similar to JT65, with one big difference. The transmissions duration is only 15 seconds instead of 60 seconds in JT65. This mode was developed especially for contacts where large fluctuations in signal strength occur, QSB for example. A disadvantage is that the sensitivity is 10dB less than JT65. FT8 decodes signals to -20dB.

As in all other digital modes (JT65, PSK31, SSTV etc.) you need to have an audio interface between the transceiver and the computer's sound card. For this I use the MicroHam USB Interface III. Of course you need software that supports this mode, in this case that is [WSJT-X](#) version 1.80. This software can also control your transceiver and runs on many versions of Windows (including Windows 10), and is also available for other platforms.

It is very important that your computer clock is synchronized to the hundredth of a second with the station you are contacting, otherwise you'll miss a piece of the transfer. For years I've used the synchronization of the [Meinberg Network Time Protocol](#). Another option is [NetTime](#), which is easier to get working by a layman.

Here is an example of a QSO as it is intended with FT8, where **PA1TEST** (fictitious call) responds to **my CQ call**:

"CQ PD3RFR JO22" CQ call from PD3RFR (JO22 is the grid square location)

"PD3RFR PA1TEST AB12" PA1TEST responds to the CQ with its location AB12

"PA1TEST PD3RFR-08" PD3RFR responds with a signal report

"PD3RFR PA1TEST R-12" PA1TEST responds (replies) with a signal report

"PA1TEST PD3RFR Rahman" PD3RFR says reception report received

"PD3RFR PA1TEST 73" PA1TEST says 'with best regards'

"PA1TEST PD3RFR 73" PD3RFR says 'with best regards'

Although this passage has lasted only 7x 15 seconds, it seems to be too long for some amateurs. In actual practice, I have regularly seen the following method, in which the actual QSO only takes 60 seconds.

"CQ PD3RFR JO22" CQ call from PD3RFR (JO22 is the Location)

"PD3RFR PA1TEST-08" PA1TEST responds with a signal report

"PA1TEST PD3RFR R-12" PD3RFR responds (replies) with a signal report

"PD3RFR PA1TEST Rahman" PD3RFR says reception report received

"CQ PD3RFR JO22" PD3RFR goes on to a new general call

It's handy to use the online [PSK Reporter Tool](#) so you can see where your FT8 signal is received with your particular transmitter and antenna setup. Then you don't need to unnecessarily call stations that you see, but who do not hear you.



FT8 is surely the beginning of something very exciting. Using a mode that could work when CW was too hard to "hear" seemed like magic.

December 2017

On the screenshot of the WSJT-X program below I was in a QSO with an Amateur in Scotland. As with JT65, there is a 'Waterfall' display which shows several QSOs. After tuning to an FT8 frequency, you see the received stations every 15 seconds in the 'Band Activity' box. If you see an interesting station, click on a CQ message (pink lines) to respond. If you receive an answer, you will see the response in the 'RX Frequency' box on the frequency where you send and receive. The colours are set in the software preferences but I just left them at the default. Unlike JT65, the advantage of this software is that it goes through the whole process/QSO by itself. So just click once and the QSO is completed when your contact station responds. If you send out a CQ call, then you can have this answered automatically.

it's cumbersome to paste one file into another every time and then also forward it to, for example, LoTW or eQSL. Therefore it's useful to install an extra piece of software [JAlertX](#) (from version 2.10.1 shown below). This program allows you to automatically forward an entry to your preferred logbook/application, for example HRD. You can also permit this program to alert you to DXCC and calls that you would like to work in your log.

FT8 is used on different shortwave bands in upper sideband mode. For the novice that is on 10 meters at 28.074 MHz, 20 meters 14.074 MHz, and 40 meters 7.074 MHz.

Because radio amateurs like to unite themselves in clubs, there is a new FT8 Digital Mode Club created through an initiative of two Austrian Amateurs. I've joined, you never know what it may be useful for ;-). I received membership number 608, an indication that there are quite a few who have adopted this new mode already.

~ Richard, PD3RFR

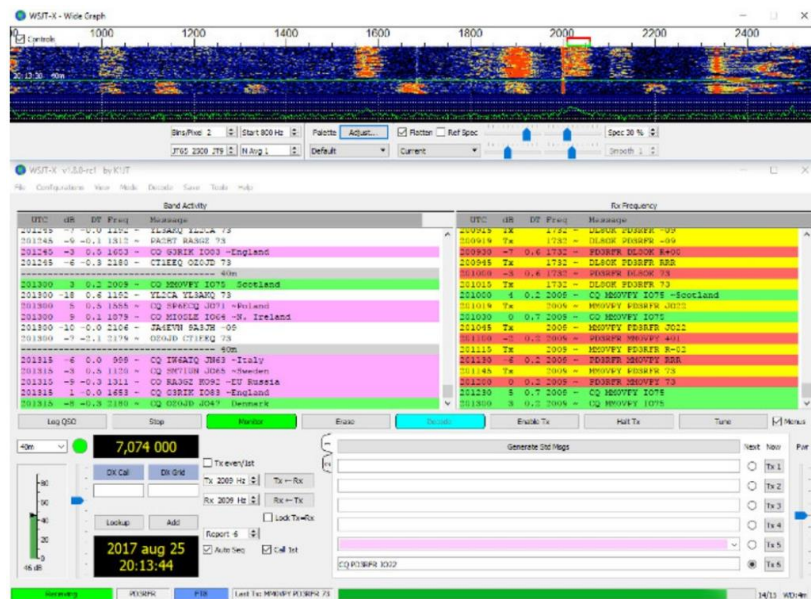
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Translation by Google and VE7TI

For more information and other interesting articles check Richard's website www.pd3rfr.nl



Logging a QSO to an ADIF file is easily done by the program itself. An ADIF file can be opened in settings, or the contact can be imported to another program like HRD Logbook. Of course



Dear Stan Williams VA7NF, and the Executive of the Surrey Amateur Radio Club,

My name is Geoff Hill; I am the volunteer coordinator for the 2017 Big White Winter Rally, the 7th and final round of the 2017 Canadian National Rally Championship, which is being held on December 8-10, 2017. I would like to tell you more about this event, in the hopes that you or some members of your club would be interested in volunteering as Radio Operators.

Big White Winter Rally is a sanctioned performance driving competition taking place on temporarily closed forestry roads surrounding Big White Winter Resort, 45 minutes East of Kelowna, BC. The event needs amateur radio operators such as yourselves, who are crucial to the safety and success of the weekend. This is also an amazing opportunity to put your amateur radio skills & equipment in action, and see real cars, on real roads, driving real fast!

What you would be doing:

As radio operators, you would be stationed at the start and finish line of each closed road, or at blocker positions along the route itself, monitoring and controlling access at intersecting roads or high-risk areas. The primary roles of the radio operator are to help the event organizers track the progress of rally cars on the roads, to keep any civilians from entering the road during competition, and to pass along relevant information in the event of a crash or safety incident. There will be a training and Q&A session for operators just before the event.

What we provide:

To reduce costs to our volunteers as much as possible, we try to provide free shared accommodation in a condo right at the Big White Ski Resort itself (this year we must ask that you register to volunteer before November 22nd if you wish to be accommodated). We also provide bag lunches during the event, and free admittance to the awards banquet and post event celebrations. When the budget allows, we do our best to provide shirts, toques, or other free swag to volunteers to show our appreciation.

What you need to bring:

Because this event takes place in winter conditions on freshly plowed Forest Service roads, we strongly advise proper winter tires in good condition, a reliable vehicle with reasonable ground clearance, and reliable radio equipment that can run for multiple hours at a time on the power provided by your vehicle. It is good practice to also bring food, fluids, and anything else you might need for an extended stay outside. The event does run after dark, so headlamps and flashlights will come in handy. Finally, warm winter clothing and wilderness common sense are also important to bring along!

Where to sign up:

The Volunteer registration page for the event can be found here: <http://bigwhiterally.com/volunteers/sign-form/>

For more information:

Introduction to Rally Volunteering (description of the radio operator role in particular can be found on page 6)

I humbly request your assistance to inform members of your amateur radio club of this opportunity. If you have any questions, don't hesitate to get in touch with me directly. Thank you for your time, I look forward to seeing you out on the stages!

Geoff Hill
geoff@rallybc.com

December 2017

New Digital Modes Changing Complexion of Bands and Perhaps of Ham Radio

ARRL

The ARRL say the wave of software-based digital modes over the past several years has altered the atmosphere of the HF bands

Some suggest the popularity of modes that make it possible to contact stations neither operator can even hear has resulted in fewer CW and SSB signals on bands like 6 meters and 160 meters. Traditional modes require far more interaction and effort on the part of the operator; the newer digital modes not so much.

The recent advent of the still-beta “quick” FT8 mode, developed by Steve Franke, K9AN, and Joe Taylor, K1JT — the “F” and the “T” in the mode’s moniker — has brought this to a head. Some now wonder if FT8 marks the end of an era and the start of a new, more minimalist age.

“We’ve been as surprised as anyone about the rapid uptake of FT8 for making QSOs on the HF bands,” Taylor told ARRL this week. Rather than viewing FT8 as a total game-changer, he sees a dividing line between such digital modes and more traditional modes.

“SSB and CW are general-purpose modes,” Taylor asserted. “They are good for ragchewing, DXing, contesting, emergency communications, or whatever. FT8 and the other modes in WSJT-X are special-purpose modes. They are designed for making reliable, error-free contacts using very weak signals — in particular, signals that may be too weak for the more traditional modes to be usable, or even too weak to hear.”

Read the full ARRL story at

<http://www.arrl.org/news/view/new-digital-modes-changing-complexion-of-bands-and-perhaps-of-ham-radio>

WSJT-X weak signal modes software, covers FT8 and others

<https://physics.princeton.edu/pulsar/k1jt/wsجت.html>

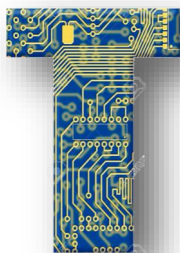
BBC reporter discovers radio tuning has become a lost art

It’s hard for a radio enthusiast to believe, but there is little reason for a millennial, for example, to ever tune a portable radio. Many have only ever connected with radio via their smart phone, computer, or other Internet appliance. Tuning, in a sense, is a foreign concept. And the irony is, for me, tuning is the fun part!

View the video:

http://www.bbc.com/news/video_and_audio/must_see/41437574/radio-1-at-50-but-where-is-it





Tech Topics

Mosley Antennas

SWR-itis... Can It Be Cured?

The advent of low-cost SWR bridges and analyzers has enabled ever-increasing numbers of Hams to become acquainted with so-called reflected power. This has become such a popular conversation piece on the Ham bands that an entirely unwarranted degree of importance has attached itself to the subject of SWR.

Many Hams - who for years had experienced excellent results with their beam antennas—suddenly found that their feed-lines possessed something less than perfect unity match to their antennas. Such is human nature, that, regardless of past performance, this newly discovered "revolting development" became entirely intolerable!

This unjustified mental attitude has for some years provided nice incomes for chiropractors and broken bone specialists who have reaped far more profit from the roof and tower excursions than have the Hams who restlessly seek perfection.

Competent professional antenna engineers generally agree that in most applications a standing wave ratio of up to 5 to 1, or somewhat higher, is satisfactory and acceptable.

For example; referring to the ARRL Antenna Handbook, we see that a SWR of 5 to 1 in RG-8/U coax will result in a signal loss at 28 MHz. of only 1 db. This decrease in signal strength cannot normally be detected on an S-Meter!

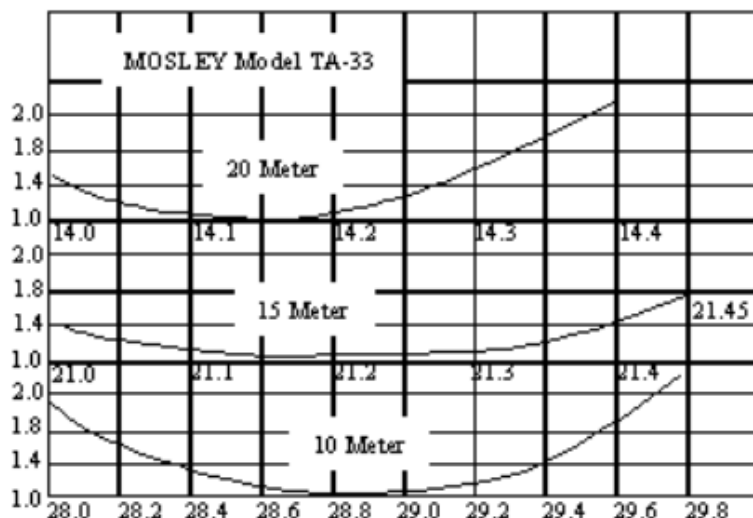
This is the "introduced loss", due to SWR, and has no bearing on the normal 1 db. line loss inherent in 100 feet of the line which is present in any case. Furthermore, these losses decrease as frequency decreases!

Sometimes - and particularly with Ham antennas which must operate over wide ranges of frequencies - it is not at all desirable to have a feed-line/antenna combination that offers perfect unity SWR. Such combinations usually are very critical and while providing unity at one frequency will often have a poorer response curve than other antennas designed to give optimum performance over a greater bandwidth. In actual practice, most Hams will be far better off with beam showing 1.1/1 SWR at tuned point and increasing but little as frequency is changed; rather than with antennas that show unity at resonance but must be re-tuned for operation at other frequencies.

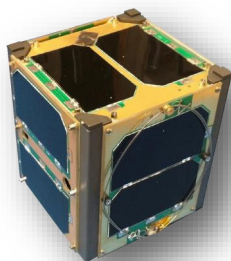
Beams do not claim perfect unity match at any point in the bands but

are so designed to provide optimum performance over the full width of each band without tiresome roof or tower climbing.

As can be seen in the graph, the frequency response curves show a very low SWR at the minimum tuning points and very slight and inconsequential rise in SWR to the band limits.



December 2017



Amateur Radio Satellites

A New Satellite Successfully Launched

RadFxSat (Fox-1B) Launched, Designated AMSAT-OSCAR 91 (AO-91)

The Delta II rocket carrying RadFxSat (Fox-1B) launched at 09:47:36 UTC on November 18, 2017 from Vandenberg Air Force Base, California.

Following a picture-perfect launch, RadFxSat was deployed at 11:09 UTC. Then the wait began. At 12:12 UTC, the AMSAT Engineering team, watching ZR6AIC's WebSDR waterfall, saw the characteristic "Fox Tail" of the Fox-1 series FM transmitter, confirming that the satellite was alive and transmitting over South Africa. Shortly after 12:34 UTC, the first telemetry was received and uploaded to AMSAT servers by Maurizio Balducci, IV3RYQ, in Cervignano del Friuli, Italy. Initial telemetry confirmed that the satellite was healthy. After confirmation of signal reception, OSCAR Number Administrator Bill

Tynan, W3XO, sent a congratulatory email to the AMSAT Board of Directors and designated the satellite AMSAT-OSCAR 91 (AO-91).

RadFxSat (Fox-1B), a 1U CubeSat, is a joint mission of AMSAT and the Institute for Space and Defense Electronics at Vanderbilt University. The Vanderbilt package is intended to measure the effects of radiation on electronic components, including demonstration of an on-orbit platform for space qualification of components as well as to validate and improve computer models for predicting radiation tolerance of semiconductors. AMSAT constructed the remainder of the satellite including the spaceframe, on-board computer and power system. The amateur radio package is similar to that currently on orbit on AO-85 with an uplink on 435.250 MHz (67.0 Hz CTCSS) and a downlink on 145.960 MHz.

RadFxSat (Fox-1B) was sent aloft as a secondary payload on the United Launch Alliance (ULA) Delta II rocket that will transport the Joint Polar Satellite System (JPSS)-1 mission. RadFxSat (Fox-1B) is one of four CubeSats making up this NASA Educational Launch of Nanosatellites (ELaNa) XIV mission, riding as secondary payloads aboard the JPSS-1 mission.

AMSAT Engineering reminds stations that the satellite will not be available for general use until the on-orbit checkouts are complete. Please continue to submit telemetry to assist the Engineering team in completing the commissioning process.

Congratulations to all of the volunteers who worked so diligently to construct, test and prepare for launch the newest amateur radio satellite.

Work Fox-1B like a repeater

Radio Programming Chart

RadFxSat (Fox-1B) Doppler Shift Correction

Memory 1 (AOS) - Transmit 435.240 MHz (67.0 Hz Tone), Receive 145.960 MHz

Memory 2 (Approaching) - Transmit 435.245 MHz (67.0 Hz Tone), Receive 145.960 MHz

Memory 3 (TCA) - Transmit 435.250 MHz (67.0 Hz Tone), Receive 145.960 MHz

Memory 4 (Departing) - Transmit 435.255 MHz (67.0 Hz Tone), Receive 145.960 MHz

Memory 5 (LOS) - Transmit 435.260 MHz (67.0 Hz Tone), Receive 145.960 MHz



Traditional Ham Radio No Longer So Attractive?

IARU President Tim Ellam VE6SH/G4HUA pointed out to the IARU Region 1 General Conference in Landshut that traditional aspects of Amateur Radio may not be attractive to all newcomers

The ARRL reports:

IARU President Tim Ellam, VE6SH/G4HUA, welcomed the attendees, urging them to reflect upon what will attract the majority of young people into Amateur Radio, “and what our mutual expectations should be.” Ellam said his personal observation is that, while some younger people are interested in the more traditional aspects of Amateur Radio, many are only interested in ham radio as an adjunct to other possibly unrelated interests.

“I applaud the excellent work that has been undertaken in this region through the Youngsters on the Air (YOTA) program.” Tim said, crediting the hard work of IARU Region 1 Youth Working Group Chair Lisa Leenders, PA2LS. YOTA’s summer Amateur Radio camps have

attracted young hams from around the world; this year’s was held in the UK.

“Our ambition should be to embrace these individuals in their activities and accept that some of the more traditional aspects of the hobby will hold little interest to them, and indeed may no longer be relevant,” he continued. “That is not to say that some are not enthused with what we all hold as the core of our hobby, such as contesting or operating generally. I fear, though, that we need to look at what will attract the new generations to Amateur Radio and make sure we promote Amateur Radio as meeting their needs, rather than promoting the historical view of what Amateur Radio has to offer.”

Read the full ARRL story at

<http://www.arrl.org/news/iaru-president-traditional-aspects-of-ham-radio-may-not-be-attractive-to-newcomers>

Conclusions from a workshop on The Future of Amateur Radio held at the 2017 IARU Region 1 General Conference in Landshut, Germany.

Within ten years, probably less, member society numbers in many countries seem likely to be in freefall. Our two challenges:

- Increasing the inflow into amateur radio - particularly among the young;
- Making Member Societies the “must join” society for all radio amateurs

Among suggestions for making Amateur Radio “Fun” were:

- Competition
- Social Interaction
- Belonging to an elite group
- Being a welcomed part of the local club
- Recognition
- Learning and discovery - particularly of the latest technology
- Quick results/success
- Space is fun + ballooning
- KISS

- Discover that kits are fun and easy
- Using amateur radio to teach

IARU Region 1 have made available a 535 MB Zip file containing the slides given at this presentation, it can be downloaded from

https://www.dropbox.com/sh/z0wabjkw5jahue/AAAEgX_4SsqAEMeZtd0ZH2ua?dl=0#

A PDF of the Conference report is at

<http://www.iaru-r1.org/index.php/downloads/function/startdown/977/>

December 2017

SARC CLUB EXECUTIVE 2017-2018

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QRT

Stan Williams VA7NF

What Direction To Take?

Calling members of SARC and our readers worldwide to participate. Our hobby has seen changes over the last century, from nothing through significant DIY, to sophisticated computer-radio combinations. How will our current membership enhance this legacy; how do our current “Elmers” see the future; what changes at the club level will best move this knowledge into the future.

Myself, as with many hams, employment and family building put radio into the background only to come alive as the nest empties. This 25-year break opened my eyes to the huge differences; when I left transceivers were just coming in and being cautious of interference was between my station and the public. That has reversed.

Now, about driving that legacy: “What direction should a club take to guide/drive our future?” Here are a couple of thoughts upon which comments are invited/appreciated.

In BC over half of the population live in STRATA aka HOA areas with accompanying by-laws relating to outside structures - Read that as no towers, masts, or dropping wire off your 20th floor balcony.

- A local, country and world-wide effort to invalidate these big telecom supported by-laws such as FCC 98-273

- Publicity to educate (propaganda?) that ham radio towers are insurance against natural disasters (e.g. After several disasters Japanese towers are a neighbourhood plus)
- Ensure remote (internet) operation is part of the planning process and encourage participation
- “Your suggestions here”

Our executive is heavily HF biased; not by design but that’s the way it worked out. This means that direction often follows that same bias.

- Suggestions for direction and legacy building is needed, neigh mandatory, from experienced VHF operators
- Much public services involve VHF (parades, cycling events, car rallies) yet the local emergency services group has limited involvement.

There is so much more that cannot fit in this column.

PLEASE SEND SUGGESTIONS including what you, or your local club, are or would like to see happen. Send to president@ve7sar.net

~ Stan VA7NF
SARC President

**The Directors of the Surrey Amateur Radio Club
extend their very best wishes for a
safe and happy holiday season.**



It's December

Because of the annual Christmas lunch, there is no regular monthly meeting but we can bring you up to date on some exciting news.

The 2017 Field Day results are in and we have scored another impressive placing, coming in 1st in BC overall, 1st in 3A in Canada, 12th in Canada overall and 75th in 3A worldwide.

Sheldon VA7XNL has promised a future Communicator article with more details, a review of the past Field Day effort, and a start to 2018 planning.

SARC hosts an Amateur Radio net each Tuesday evening at 8 PM. Please tune in to the VE7RSC repeater at 147.360 MHz (+600 KHz) Tone=110.9, also accessible on IRLP node 1736 and Echolink node 496228.

On UHF we operate a repeater on 443.775MHz (+5Mhz) Tone=110.9 or IRLP Node 1737.

	SARC Net 20:00 Hrs
1st Tuesday Standby	Drew VA7DRW Dixie VA7DIX
2nd Tuesday Standby	Jinty VA7JMR Sheldon VA7XNL
3rd Tuesday Standby	Rob VE7CZV Vacant
4th Tuesday Standby	Kapila VE7KGK John VA7XB
5th Tuesday Standby	Robert VA7FMR Vacant
Want a turn at Net Control? Contact the SARC Net Manager	

Down The Log...

SARC Monthly Meetings

2nd Wed. (Sept-Jun)
1900 hr at the PREOC
Emergency Mgmt BC
14292 Green Timbers
Way, Surrey, BC

Weekly Club Breakfast

Saturday at 0900 hr
Kalmar Family Restaurant
8076 King George Blvd.
Surrey

SARC Net

Tuesday at 2000 hr local
on 147.360 MHz (+)
Tone=110.9

SEPARS Net

Tuesday at 1930 hr local
on 147.360 MHz (+)
Tone=110.9

VE7RSC Repeaters

2m: 147.360MHz+
Tone= 110.9Hz
IRLP node 1736
Echolink node 496228

1.2m: 223.960 Mhz -1.6
Tone=110.9

70cm: 443.775MHz+
Tone= 110.9Hz
IRLP node 1737



We Have A SARC Patch!

These are suitable for sewing on a jacket, cap or your jammies, so you can proudly display your support for the club.

The price is \$4 each or three for \$10 and they can be picked up at a meeting or the weekly Koffee Klatch.

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